Study of the Quality of Applicants' Admission to Universities Based on the Results of the Unified State Exam in Russia

Lilyana M. Toomsalu-Stefanova
Prof., Mittetulundusühing Institute for Monitoring Education Quality, Estonia, *lilyana.stefanova@protonmail.com*

Elena N. Fokina
Tyumen Industrial University, Russian Federation, *fokina.elen@rambler.ru*

Alla V. Molchanova
Prof., Moscow psychologic-social University, Russian Federation, *alla_molchanova67@mail.ru*

Oksana N. Berduygina
University of Tyumen, Russian Federation, *oksa-n@inbox.ru*

The study was devoted to assessing the quality of applicants' admission to universities based on the results of the Unified State Exam ("USE") in Russia. The problem area of the study included the issues of students' integration in the learning environment. The power of integration has a rigid projection on the student's successes in the learning process and after graduation from the university when applying for work. The literature review established the applicants' susceptibility to following a given strategy of vertical academic mobility. The existing patterns made it possible to state that applicants' behaviour throughout the entire period of study at the university is predictable. Based on the empirical data of one of the leading universities of Russia, an analysis of the factors affecting students' motivation was carried out, which is of great importance for improving the efficiency of the educational process. The quality of admission of applicants to universities varies in degree of training, which requires the identification of factors affecting academic performance. Static methods investigated the link between students' attitudes toward risk and their academic results. The obtained results showed some steady trends. It turned out that the USE results in Mathematics, Russian and English are significant for the prediction of the final rating of a first-year student

Keywords: unified state exam, admission campaign, vertical educational mobility, factors of academic performance, assessing the quality

INTRODUCTION

Investment in education has become one of the most important parts of the formation of a person's social potential and sustainable development of society (Prakapavičiūtė & Korsakienė, 2016). Successful learning can be considered the degree of mastering knowledge and skills that enables the learner to freely move on to the next educational stage. The successive transition from one learning stage to another can be called vertical educational mobility, which is also characterized by a change in the social status of a student. At the current stage of development of the education system, the need to study vertical mobility in this area is becoming more and more tangible due to the increasing complexity and increasing number of educational modules.

In such conditions, it is possible to observe obvious differences in learning outcomes between the aggregated groups distinguished by some socio-demographic and other characteristics. Socio-demographic characteristics significant for this study include such characteristics as gender, age, and place of residence, as well as ethnicity, initial training, etc. (Naylor & Smith, 2004; Calcagno et al., 2007; Sulphey et al., 2018). Obviously, the listed characteristics can affect the ultimate learning outcome in a different way depending on the conditions.

The level of expulsions among university students is heterogeneous in different countries. According to the OECD, the largest share of students who have not graduated from higher education institutions is recorded in the USA (54%), the smallest share – in Denmark (16%) and South Korea (15%). In Russia, the level of expulsions among students was 21%. In OECD countries, about 30% of students do not complete full-time studies at universities. Recently, researchers are increasingly inclined to think that the quality and outcome of education directly depend on how much a student was interested in studying, how seriously he/she took the educational process, as well as what kinds of activities he/she was involved in while studying and how much time he/she spent on this activity (Coates, 2005).

Negative consequences of incomplete educational mobility were not given due attention for quite a long time and, in fact, they cover a wide range of issues. Significant progress in solving the problem of student expulsions occurred in the 1970s-1980s (Tinto, 1975, 1982; Pascarella, & Terenzini, 1980; Eckland, 1962; Bean, 1982), in spite of the fact that research on this topic was mainly descriptive rather than theoretical. It should be noted that most of them were only the result of a search for variables that were largely related to the success or failure of a student's learning and his/her subsequent expulsion statistically. With the development of this direction, the subject of research also changed: not only students' academic failures and, as a result, their expulsion, but also factors of success in learning, as well as reasons explaining the high degree of differentiation of student trajectories, have been introduced in the process (Kuh et al., 2006).

All these aspects are well-researched by the example of educational systems of the USA, Great Britain, France, etc. However, despite a large number of works devoted to the issues of ensuring the stability of vertical educational mobility of students, in the

authors' opinion, the problem of studying the factors affecting students' academic performance in Russia remains poorly studied.

When summing up the results of the admission campaign in Russia, the task of assessing the admission effectiveness arises. According to the established practice, monitoring of the effectiveness of universities is carried out with a focus on two main indicators – the average score of the Unified State Exam ("USE") of students enrolled in the first year of study, and the number of winners and prize-winners of academic competitions enrolled in the first year of study. In the authors' opinion, the long-term influence of the USE remains one of the main open-end questions. Does its influence decrease and how fast is it, is there a tendency for students to level out the results after a few years of study, or do the USE results objectively show constant personal characteristics of students and therefore have a long-term significance?

It should be understood that the quality of applicants' admission to universities varies in the degree of training, which requires the identification of factors that affect academic performance. Therefore, the purpose of the current research is to assess the impact of USE results and other basic parameters of students' enrollment on their academic performance in the first and last year of study. The study is aimed at establishing significant factors that form the academic trajectory of students in the learning process.

The article is structured as follows: the literature on the quality of applicants' admission to universities and the formalization of the USE as the main component of the admission campaign system has been reviewed; then the data on students' admission to and expulsion from one of the leading universities of Russia as to the economic specialization of the educational program have been presented; the analysis of the identified patterns has completed the study.

LITERATURE REVIEW

There is extensive literature on the effectiveness of selection of students and the prediction of their academic performance based on the results of national tests. In order to conduct a detailed analysis of the admission campaign and the results of applicants' admission, the specifics of the USE conduct in Russia need to be understood in comparison with other countries. Let us consider the experience of China, the USA, and the UK.

The nationwide entrance exam at higher education institutions was introduced in China in 1952 and called "Gaocao". Subsequently, a scheme "3+X" for passing an exam was developed and it suggested the following modules: the first module is Chinese, Mathematics and English (standard compulsory subjects); the second module is a subject to choose from the humanities or natural sciences (Shaowei, 2017). This feature shows certain similarities with the USE format in Russia. Chinese applicants apply for admission not to the university itself, but to a special state agency. The applicant, who has received the highest score, enters the most distinguished university (the highest category) (Tianhong & Hao, 2017; Mashkina, 2013). Shaowei (2017) concludes on the basis of generalized statistics that an applicant, who is interested in entering the

university and has a good rating, will be motivated to study for good results even after passing the "Gaocao" exam directly at the university.

The form of applicants' admission in the USA differs from the system adopted in China. It implies the support aimed at building communication. High school graduates are given the opportunity to pass general educational exams ACT and SAT. Students have the right to pass the test several times a year if the results do not meet their expectations. However, a particular university has the right to set different requirements for the results obtained in the state exam.

In 1960, Fishman and Pasanella (1960) conducted a joint study of dynamics of the determination coefficient in regressions between the students' average score for the first year of college and their SAT results. According to the results obtained during the study, the determination ranged from 0.34 to 0.82, which shows the importance of SAT results for predicting students' academic performance in the first year of study. After almost 50 years, a group of researchers led by Kobrin (2008) proposed to include in the regression the data on students' average score for the last year of school, showing that in this way the lower limit of the determination coefficient increases up to 0.46. Then, based on these findings, Coyle et al. (2011) determined that SAT is the most objective indicator for determining potential academic performance for students who showed high abilities in the first year of study at the university.

It should also be noted that in the American education system, a bachelor's degree programme mainly fulfills a social function, focusing on forming future professional interests in accordance with the needs of consumers. However, students who have decided to further their studies will face a rather strict selection at the stage of promotion to the following educational modules.

The latter was a British admission campaign model that is different from the American one. At UK universities, there are no uniform requirements for admission. An applicant has to submit an application no later than October of the graduation year to a special agency with the indication of higher education institutions in which he/she would like to study. Leišytė (2007) notes that such a "permit system" guarantees a complete immediate refusal or approval of the candidate without the right to re-request.

The review shows that the countries under consideration have their own standards for applicants' admission. To determine the quality and effectiveness of the admission campaign, a model of the behavior of an applicant entering the university should be developed.

The phenomenon of student expulsions has its own specifics in different educational systems. Upon the results of the study at the British Open University, Carr and Ledwith (1980) noted that the reasons that prompted students to stop studying differ by type of training programme: students studying art and sociology more often indicated personal and household problems, while students studying the exact sciences indicated the reasons related to the work or increased employment.

The American student admission system is selective in the same way as the subsequent student learning process (Weissmann, 2014). In turn, the Russian higher education system is quite tough in matters relating to students' expulsion, especially at highly selective universities: when entering a university, students pass a highly competitive exam, and in the process of training, they can be expelled due to, for example, academic failure. Due to the fact that the level of expulsions at a university depends on the degree of its selectivity, there is some differentiation of tools for managing the process of expulsions at educational institutions with high and low competition for state-financed places.

In Russia, student expulsions have not yet become the subject of focused study. At the moment, there are very few empirical studies that could already be applied in practice to determine the dropout rates of students, its causes and mechanisms (Tsibenko & Zlobin, 2014; Kochergina & Prakhov, 2016; Lebedeva et al., 2016).

According to Gordeeva et al. (2011), students enrolled due to the results of academic competitions are much more successful in terms of academic achievements than the students enrolled on a general basis according to the USE results. According to the analysis of the performance of students enrolled on the basis of USE results, conducted by Zamkov and Peresetsky (2013), it has been proved that the USE results and the examination period results are interrelated and have a positive correlation. This analysis was conducted on the basis of previous studies (Peresetsky & Davtyan, 2011).

Kochergina and Prakhov (2016) proposed to include in the traditional models of student integration and expulsions such individual characteristic of a student as his/her risk attitude. Risk attitude is usually not considered as a factor influencing the expulsion from the university; however, this trait of a student can not only be part of the process of academic integration but also directly affect its successful performance. Risk-averse students are usually less integrated into the academic environment and, as a result, they are more likely to be expelled from the university.

According to Bordean and Sonea (2018), students do not perceive satisfaction differently according to their grade levels, although there may be a relationship between levels of satisfaction and class attendance. The issues of satisfaction with the quality of education and the resulting indirect effects were raised in the works by Dalati and Hamwi (2016), Naushad (2018).

The existing patterns and stable trends suggest that applicants' behavioral strategies throughout the training period are predictable. Based on this thesis, it is logical to conclude that the main purpose of the admission campaign is to identify applicants who will be interested in getting good grades at the university. The analysis should be based on the applicant's USE results – the high-quality applicant admission will be reflected in the indicators of the ratio of the USE results with the results of the first year of study at the university.

As a result of the study of the problem of academic expulsion, it was revealed that not in any case the expulsion of a student is the result of his/her insufficient academic diligence. The student's learning achievement, in addition to his/her own contribution, is

also influenced by other important factors. A high level of expulsions at a particular university is not always an indicator of the quality of education provided. There is a permanent need to develop adequate approaches to teaching and improve teaching methods (Litau, 2018; Vlasov & Demin, 2017). Thus, it can be concluded that the study of factors affecting the students' motivation to learn plays a significant role in improving the effectiveness of the educational process.

METHOD

The literature review has established that the USE results and the results of the first examination period completed by students form the interrelation, which is manifested in overall performance indicators. Statistical analysis was conducted to identify the nature of this interrelation. This study was based on identifying trends and features of the admission campaign, which allowed tracing the behavioral strategies of applicants and their readiness for subsequent tests in the first year of study.

Competently organized and systematic accounting of students' academic performance made it possible to compare and analyze the relationship between success in the learning process and the results of the USE, academic competitions, and other achievements, taking into account various factors of influence. The extended data collection system is developed not at all universities, which somewhat limits the possibilities of continuous observation. A good example in this case is the admission statistics of leading universities. Therefore, the data obtained following the results of the admission campaign of 2018 at the National Research University Higher School of Economics – NRU HSE (Moscow, Russia) were used as an empirical base. According to the research concept, the analysis was conducted on a number of training programs (Table 1) in order to demonstrate the expulsion statistics in selected fields of study.

Table 1
The Average USE Scores of Applicants Enrolled in Commercial (Fee-Based) Places in the Context of a Number of Educational Programs for the Period of 2012-2018

Field of study	2012	2013	2014	2015	2016	2017	2018
Mathematics	80.7	81.4	-	76.4	83.9	83.9	92.5
Applied Mathematics and Computer Science	75.6	78.3	77.8	80.7	81.8	85.9	89.9
Applied Mathematics	69	71.4	67	71	74.4	76.7	82.5
Physics	-	-	-	-	-	89.4	85.3

Source: Source: Report on the Results of the 2018 Admission Campaign. Bachelor's (Specialist) Degree Programmes (2018).

A separate group of applicants included the so-called "competitors", who had special achievements in addition to the USE results. Their academic performance during university studies could differ from the performance of students enrolled solely due to the USE results. Due to the frequency of use and the number of achievements credited (Table 2), the dynamics of student expulsions among state-financed admission places could be identified.

Table 2
Individual Achievements when Enrolling to State-Financed Places in 2018

Type of achievement	Number of achievements credited	Frequency of achievement use
Essay	1,738	86.30%
Honor certificate	973	48.31%
Participation in academic competitions and contests	508	25.22%
Sports category	20	1%

Source: Report on the Results of the 2018 Admission Campaign. Bachelor's (Specialist) Degree Programmes (2018).

The final data block referred to the general information about expelled students (Table 3). Groups of students whose expulsion rates varied depending on the reason for expulsion were identified. Two indicators ("academic deadlock" and expulsion for other reasons) were identified.

Table 3
The Weighted Level of Student Expulsions in 2017-2018 Enrollment Years

Indicator	2017	2018
Students expelled due to "academic deadlock"	18.1	17.0
Among them:		
Students expelled for academic failure	13.1	10.5
Students expelled because they have not got back from academic leave, voluntarily, due to non-compliance with the contractual terms, or they are transferred to another university + have not passed any disciplines	3.0	3.1
Students transferred to another department, either they are granted academic leave + have not passed any disciplines, or they are expelled due to academic failure	5.8	5.4
Students who were expelled (for whatever reason), went on academic leave or changed a department	29.4	24.1

Taking into account the aspects of admission of applicants who have scored the minimum number of points, as well as the applicants who scored the maximum number of USE points, but were expelled as a result of the above-mentioned separation stages (academic failure and other reasons), it could be assumed that the quality of applicant admission depended not so much on one, as on several factors synchronized among themselves.

The situation should be simulated in order to clarify the logic of further statistical analysis: suppose an applicant with a low USE score completed the examination period successfully, while a potential "A" grade student, who received the maximum number of scores based on USE results, was listed as expelled for family reasons (this type of reason is described in Table 3). There are many factors contributing to such important reasons for expulsions. However, this category of expelled students should not be considered as an indicator of poor-quality work of the admission campaign – in this case, one can talk about an indicator of the positive dynamics of applicant admission and the smallest number of expulsions among first-year students. It should be clarified

that the objective of the functional indicator was not so much the consideration of the factors influencing the positive results of the first-year students based on examination period results, but the total number of first-year students who successfully passed the USE and expelled students who received low USE scores. In order to trace the specificity of the application of this thesis in practice, it was necessary to indicate some features of the qualitative composition of applicants at universities based on the USE results.

The authors gave the following formula, which allowed analyzing the quality of applicant admission against the above circumstances:

$$N = \frac{A}{O!} + \frac{Ao(e)}{Oa!} + \dots \tag{1}$$

where A – an applicant with a large number of USE scores; Ao – an applicant with the lowest scores on the USE results; N – an unknown variable (the quality of applicant admission), the positive dynamics of applicant admission and the lowest number of expulsions of first-year students; O – expelled applicants with the greatest number of USE scores; e – the data of USE results; Oa – expelled applicants with the lowest scores.

Formula (1) was developed to clarify the specifics of the number of expelled students, who received the maximum and minimum number of scores based on USE results. In order to identify N, it was necessary to know the total number of students enrolled in the university, determine a coefficient of their total number with the maximum and minimum USE scores and then analyze the first-year students, who were enrolled based on USE results and expelled for various reasons. This was the way to assess the quality of applicant admission to universities based on USE results.

The second part of the study was devoted to the regression analysis of USE results and other basic parameters of students' enrolment in Russia on their academic performance. The authors developed two models.

The first model was used for assessing the impact of the attitude to risk on the average score in the first year of study. The model was a linear regression, where the values were searched by the least square method and had the following form:

$$GS = \alpha + \beta R + X'\gamma + \varepsilon, \tag{2}$$

where GS – a student's average score; R – the index of attitude to risk (a subjective variable obtained by an expert survey); X – the vector of control variables; α, β, γ – regression coefficients; ε – an error.

The second model for assessing the impact of risk acceptance on the probability of expulsion was a logical regression of binary choice:

$$Pr = (Dropout = 1 \mid Z) = f(Z) = \frac{1}{1+e^{-z}}, \tag{3}$$

where $Pr(\cdot)$ – the probability of expulsion; $f(Z)$ – a logistic function underlying the model; Z – a product of regressor vectors and coefficients (independent variables were identical to the first model).

After obtaining the results of the regression analysis of these models, the marginal effects of the average values were calculated, which showed the change in the probability of being expelled depending on the change in each independent variable.

FINDINGS

Analysis of Statistics on the Admission of Applicants

In the period of 2012-2018, the number of graduates in Russia steadily declined; in 2018 compared with 2017, there was a slight increase in the number of graduates. At the same time, the number of NRU HSE applicants has steadily increased, reaching its maximum of 12,622 people in 2018. In addition, the share of NRU HSE applicants of the total number of graduates of Russian schools in 2018 was 2%. This indicator has been increasing since 2012 (Report, 2018).

Admission to NRU HSE is carried out in 30 different fields of study. The total number of applicants enrolled in the first year of study shows steady growth over the past years (Table 4). In absolute terms for the period of 2013-2018, the average increase was more than 550 people.

Table 4
Applicant Enrollment Structure

Type of enrollment	2012	2013	2014	2015	2016	2017	2018
Total number of applicants enrolled	3,090	4,128	3,046	4,145	5,036	5,756	6,395
Enrolled to state-financed places	1,917	2,520	2,127	2,446	1,950	1,947	2,014
Enrollment based on USE results, people	995	1,375	1,281	1,615	1,121	942	935
Share in state-financed admission, %	51.9	54.5	60.2	66.0	57.5	48.4	46.5
Enrollment without entrance examinations (based on the results of academic competitions and other achievements), people	841	1014	737	684	690	851	851
Share in state-financed admission, %	43.9	40.2	34.6	28.0	35.4	43.7	42.3
Admission quota for people with special rights, people	50	92	63	87	83	108	108
Share in state-financed admission, %	2.6	3.6	3.0	3.6	4.3	5.5	5.4

Source: Report on the Results of the 2018 Admission Campaign. Bachelor's (Specialist) Degree Programmes (2018).

Table 4 shows stable positive dynamics of enrollment to state-financed and commercial (fee-based) places. The total number of those enrolled increased by 2 times in comparison with 2012; the admission to fee-based places increased by many times. The highest rate of enrollment to state-financed places was noted in 2015, as well as enrollment of applicants upon the general USE competitive exam. Besides, for research

purposes, it is interesting to trace the ratio of a share in state-financed admission upon USE results and additional tests conducted by the university. The following tendency can be noted: winners of academic competitions and applicants with other personal achievements demonstrate better results. To clarify the specifics of the practical application of this assertion, some features of the qualitative composition of applicants will be indicated.

Assessment of Students' Academic Performance According to USE Results

The study assumes that the USE results are of great importance for determining the potential of students and predicting their academic performance, and the students' final rating based on the results of the first year of study almost completely accumulates the initial information about the USE results.

Let us consider the average USE indicators of expelled and non-expelled students (Table 5) to test this hypothesis.

Table 5
Comparison of Average USE Results of Expelled and Non-Expelled Students

Indicator		Non-expelled			Expelled			Significance level
		Average USE score	N	SD	Average USE score	N	SD	
USE in Russian	S-F	81.7	632	9.8	80.3	55	10.9	0.28
	C	74.1	922	8.4	70.7	202	7.0	0.00
USE in Mathematics	S-F	75.5	388	10.5	71.4	37	13.1	0.07
	C	67.2	681	11.5	61.3	161	10.1	0.00
USE in a foreign language	S-F	87.8	560	12.1	79.0	41	19.9	0.00
	C	79.8	891	13.1	73.1	188	15.6	0.00

Note: S-F – State-financed; C – Commercial; SD – Standard deviation.

Based on the available data, let us analyze whether the USE results actually differentiate well the students who are expelled and those who are not expelled due to academic failure. In addition, some features of the expulsion of students who had the highest and lowest USE scores upon admission have been identified based on the available data.

Among those who were expelled, the average score is 70.5, while among those who were not expelled – 77.4. The analysis was based on the USE scores in several compulsory subjects (Russian and Mathematics) and an additional specialized exam (English). As a result of the comparison, significant differences were found by all indicators between the group of expelled and non-expelled students studying on a commercial basis. However, among the expelled and non-expelled students of the state-financed department, there is a noticeable differentiation of results only in a foreign language.

The method of statistical analysis will be used to study the relationship of students' risk attitude and such academic indicators as current academic performance and probability of expulsion. Table 6 presents the results of the assessment of regression models.

Table 6
The Impact of Risk on Academic Performance at the University and the Probability of Expulsion

Variables	The impact of risk attitude on the average score in the first year of study	The impact of risk-taking on the probability of expulsion
General risk attitude	-0.51 (0.77)	0.39* (0.31)
USE in Russian	0.07*** (0.02)	-0.03** (0.01)
USE in Mathematics	0.12*** (0.04)	-0.04** (0.02)
USE in a foreign language	0.10*** (0.04)	-0.03** (0.01)
State-financed studies	0.89*** (0.14)	-0.07 (0.00)
Additional achievements (subject competitions)	0.09*** (0.03)	-0.05** (0.01)
Constant	5.17*** (0.92)	
R^2	0.37	

Note: Standard errors are in brackets. Significance levels: * – 10%; ** –5%; *** – 1%.

DISCUSSION

The literature review showed the existence of several types of systems: systems with a rigid selection of applicants for admission to the university and with a low level of expulsions in the learning process (the UK); systems with relatively low admission selectivity, but a large percentage of students expelled already after the first year of study (France) (Grove, 2014). Based on this thesis, the results obtained in the research process can be analyzed to determine the quality of admission campaigns of Russian universities based on the USE.

Traditionally, the verification of conclusions is supported by the discussion of the data and their comparison with other studies on this topic, taking into account institutional, social and other specifics. However, studies of the impact of a combination of factors on the expulsion of Russian students based on regression models are few. As a rule, modern works use the Tinto and Bean models, in particular, to assess the impact of students' adaptation to the academic environment on the probability of their expulsion at the end of the first year of study (Gorbunova, 2013). Such variables as age at the time of enrollment, a student's gender, the faculty, the method of enrollment, the mode of study, USE results, having a gold medal for school success, the place of residence before entering the university were tested (Kolotova, 2011). The authors' work continues this line of studying the factors that form the academic trajectory of students.

The analysis of the data obtained revealed the following features: applicants' indicators based on the USE results in such disciplines as Mathematics, Russian and English are

important for predicting a student's place in the rating following the results of the first year of study. It has also been confirmed that students who entered the university upon results of academic competitions are more successful in the learning process than students enrolled on general admission grounds, even if they both have the same indicators for the USE. Moreover, the fact of enrollment upon results of academic competitions matters not only in the first year of study but also affects the success of a student's further studies. This is due to the fact that students-competitors have certain personal characteristics that distinguish them from other students based on the results of academic performance. However, no differences in the risk of expulsion between students enrolled on a general basis and students enrolled upon the results of academic competitions have been identified. It is important to note that major differences in average results between groups of expelled and non-expelled students are recorded only for students who study on a fee-based basis. Due to the fact that the current academic performance of a student and the probability of expulsion directly depend on the USE scores when entering a university, one can speak of an indirect effect of performance on a student's potential expulsion as an indicator of his/her abilities and motivation to learn.

Table 6 shows a significant interrelation only between the student's risk attitude and his/her average score for the first year of study. Based on the data in the table, it can be concluded that the results of the USE in Russian, Mathematics and a foreign language affect the average score in a positive way and are negatively related to the risk of expulsion. The relationship between the general attitude to risk and the probability of expulsion is significant only at the 10% level (the so-called critical significance). This result may be due to limitations associated with the features of the sample. However, similar parameters of reliability of the research model are reviewed in Xitao's work (2001), which indicates other reasons for the critical significance. The authors assume that in further studies with more precise control and more observations, the results will become more reliable.

Such specific factor as the risk perception is formed in an applicant even before entering the university and influences the degree of integration of a potential student into the academic environment, correlating with the probability of his/her subsequent expulsion. At the same time, the quality of education is considered as a complex indicator, which contains all the stages of development and formation of a person, conditions, and results of the educational process and a criterion determining the effectiveness of activities of an educational institution.

Since the relationship between a student's current academic performance and the probability of his/her expulsion has already been identified, the indirect effect of academic performance on potential expulsion can be considered as an indicator of a student's abilities and his/her motivation to learn. The hypothesis that students who entered the university upon the results of academic competitions are more successful in the learning process than the students who were enrolled on the general basis of applicant admission, even if they both have the same USE scores, is confirmed by regression data. This means that the current performance pre-determined by the USE

results may indirectly contribute to the expulsion of a student. Consequently, the USE results are a significant predictor of educational outcomes at the university.

The following conclusions can be made upon research results. Many factors affect the quality of applicants' admission to universities, for example, a format of training (fee-based or state-financed) and the USE results. A similar relationship between the analyzed indicators corresponds to the Tinto model of student integration (Tinto, 1975). In addition to the academic integration, the Tinto model includes variables of the student's previous experience: social status, school experience, the place of residence, individual characteristics, such as gender, nationality, race, and personality abilities. The author's study covered only one of these social aspects – namely, personal abilities, and the results confirmed its significance.

The data obtained also indicate that a higher academic impulse reduces the likelihood of expulsion. However, this relationship also depends on the selectivity of the university, the field of study and some other social aspects (Kondratjeva, Gorbunova & Hawley, 2017). Therefore, this causal relationship is not rigid.

CONCLUSION

During the study, it has been found out that the probability of expulsion from the university and the reasons for termination of education depend on the educational system as a whole. A case study of the problem of academic expulsion showed that expulsion from the university is not always due to a lack of diligence in a student. Institutional factors also have a significant impact on learning success. Thus, high rates of expulsions for a particular university are not a guarantee of the high quality of the education provided.

At the same time, there are stable trends that indicate a number of determining factors in the direction of the academic trajectory of students and the likelihood of their expulsion. For example, the USE results in Mathematics, Russian and English are significant for the prediction of the final rating of a first-year student. It was established that the winners of academic competitions and applicants with other personal achievements show the best academic results compared to other applicants. A higher initial academic impulse reduces the likelihood of expulsion from the university in subsequent years of study. To improve the efficiency of the educational process, it is necessary to pay attention to the factors affecting students' motivation to learn. This may be a subject of further research. Clarification of the causes and the search for suitable tools for correcting the academic trajectory of students and their integration into the educational environment will be productive.

REFERENCES

Bean, J. P. (1982). Student Attrition, intentions, and confidence: interaction effects in a path model. *Research in Higher Education 17*(4), 291-320. https://doi.org/10.1007/BF00977899.

Bolotov, V. A., & Efremova, N.F. (2006). The system of assessing the quality of Russian education. *Pedagogy, 1*, 22-31.

Bordean, O. N., & Sonea, A. (2018). Student satisfaction and perceived skills: Any link to employability? *Entrepreneurship and Sustainability Issues, 6*(1), 356-370. https://doi.org/10.9770/jesi.2018.6.1(22).

Calcagno, J. C., Crosta, P., Bailey, T., & Jenkin, D. (2007). Does age of entrance affect community college completion probabilities? Evidence from a discrete-time hazard model. *Educational Evaluation and Policy Analysis, 29*(3), 218-223. https://doi.org/10.3102/0162373707306026.

Carr, R., & Ledwith, F. (1980). Helping disadvantaged students. *Teaching at a Distance, 18*(Winter), 77-85.

Coates, H. (2005). The value of student engagement for higher education quality assurance. *Quality in Higher Education, 11*(1), 25-36. https://doi.org/10.1080/13538320500074915.

Coyle, T., Snyder, A., Pillow, D., & Kochunov, P. (2011). SAT predicts gpa better for high ability subjects: Implications for Spearman's law of diminishing returns. *Personality and Individual Differences*, *50*, 470-474. https://doi.org/10.1016/j.paid.2010.11.009.

Dalati, S., & Al Hamwi, S. E. (2016). Sustainable development in higher education through service quality and price fairness: Empirical evidence from private universities in Syria. *Entrepreneurship and Sustainability Issues, 4*(1), 25-38. https://doi.org/10.9770/jesi.2016.4.1(3).

Eckland, B. K. (1962). Social class and college graduation: Some misconceptions corrected. *American Journal of Sociology, 70*, 38-50. https://doi.org/10.1086/223736.

Fishman, J. A., & Pasanella, A. K. (1960). College admission selection studies. *Review of Educational Research*, *30*(4), 298-310. https://doi.org/10.2307/1168852.

Gorbunova, E.V. (2013). The impact of adaptation of freshmen to the university on the probability of their expulsion from the university. *Universitas, 2*, 59-84.

Gordeeva, T. O., Osin, E. N., Kuzmenko, N. E., Leontyev, D. A., Ryzhova, O. N., & Demidova, E. D. (2011). On the effectiveness of two systems of applicant enrollment to chemical universities: Further analysis of the problem. In V. V. Lunin, & N.E. Kuzmenko (Eds.), *Natural science education: Development trends in Russia and in the world* (pp.88-110). Moscow: Moscow State University.

Grove, D. (April, 1, 2014). UK has 'lowest drop-out rate in Europe'. *Times Higher Education*. Retrieved from https://www.timeshighereducation.co.uk/news/uk-has-lowest-drop-out-rate-in-europe/2012400.article.

Kobrin, J. L., Patterson, B. F., Shaw, E. J., Mattern, K. D., & Barbuti, S. M. (2008). *Validity of the SAT for predicting first-year college grade point average*. College Board Research Report.

Kochergina, E. V., & Prakhov, I. A. (2016). The relationship between risk attitude, academic performance and the likelihood of drop-outs. *Issues of Education*, *4*, 206-228. https://doi.org/10.17323/1814-9545-2016-4-206-228.

Kolotova, E.V. (2011). Studying expulsions among undergraduate / specialty students at NRU HSE. In O. A. Oberemko (Ed.), *Sociological methods in modern research practice* (pp.271-279). Moscow: HSE Publishing House.

Kondratjeva, O., Gorbunova, E., & Hawley J. D. (2017) Academic momentum and undergraduate student attrition: Comparative analysis in US and Russian universities. *Comparative Education Review*, *61*(3), 607-633. https://doi.org/10.1086/692608.

Kuh, G., Kinzi, J., Buckley, J., Bridges, B., & Hayek, J. (2006). *What matters to student success: A review of the literature*. Commissioned Report for the National Symposium on Postsecondary Student Success: Spearheading a Dialog on Student Success. NPEC.

Lebedeva, T. V., Tsypin, A. P., & Sidorenko, V. S. (2016). Statistical analysis of factors affecting academic performance of students of Russian universities. *Intellect, Innovation, Investment, 9*, 55-58.

Leišytė, L. (2007). *Higher education in the UK*. Country Report. CHEPS 19. https://doi.org/10.1057/palgrave.hep.8300122.

Litau, E. Y. (2018). *Cognitive science as a pivot of teaching financial disciplines*. Proceedings of the 31st International Business Information Management Association Conference, IBIMA 2018: Innovation Management and Education Excellence through Vision 2020, pp. 72-80.

Mashkina, O. A. (2013). *The development of higher education in modern China*. Higher School in the Conditions of Development of an Innovative Economy. Moscow: The Faculty of Economics of M.V. Lomonosov Moscow State University, 146-158.

Naushad, M. (2018). A Study on the antecedents of entrepreneurial intentions among saudi students. *Entrepreneurship and Sustainability Issues, 5*(3), 600-617. https://doi.org/10.9770/jesi.2018.5.3(14).

Naylor, R. A., & Smith, J. (2004). Determinants of educational success in higher education. In G. Johnes, & J. Johnes (Eds.), *International handbook of the economics of education* (pp.415-461)*. Edward Elgar Publishing*. https://doi.org/10.4337/9781845421694.00016.

Pascarella, E., & Terenzini, P. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education, 51*(1), 60-75. https://doi.org/10.2307/1981125.

Peresetsky, A. A., Davtyan, M. A. (2011). Efficiency of the USE and academic competitions as a tool for the selection of applicants. *Applied Econometrics, 23*(3), 41-56.

Prakapavičiūtė, J., & Korsakienė, R. (2016). The investigation of human capital and investments into human capital: Lithuania in the context of the EU. *Entrepreneurship and Sustainability Issues*, *3*(4), 350-367. https://doi.org/10.9770/jesi.2016.3.4(4).

Report on the Results of the 2018 Admission Campaign. Bachelor's (Specialist) Degree Programmes (2018). Moscow: National Research University Higher School of Economics.

Shaowei, L. (2017). High aspirations and evolution of Gaocao for 40 years after recover. *Nan Feng Chuan, 12*(594), 28-31.

Sulphey, M. M., Al-Kahtani, N. S., & Syed, A. M. (2018). Relationship between admission grades and academic achievement. *Entrepreneurship and Sustainability Issues, 5*(3), 648-658. https://doi.org/10.9770/jesi.2018.5.3(17).

Tianhong, Z., & Hao, H. (2017). What shifts and breakthroughs will the Gaocao reform ultimately bring? *Zhongguo Jiaoyubao*, 1-3.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125. https://doi.org/10.3102/00346543045001089.

Tinto, V. (1982). Limits of theory and practice in student attrition. *Journal of Higher Education*, *53*(6). https://doi.org/10.2307/1981525.

Tsibenko, E. S., & Zlobin, E. V. (2014). The analysis and risk assessment of student expulsion from university. *Issues of Modern Science and Practice. Vernadsky University*, *1*(50), 203-208.

Vlasov, A. I., & Demin, A. A. (2017). *Visual methods of formalization of knowledge in the conditions of the synchronous technologies of system engineering*. ACM International Conference Proceeding Series. http://doi.org/10.1145/3166094.3166098.

Weissmann, J. (2014). *America's awful college dropout rates*. Retrieved from http://www.slate.com/blogs/moneybox/2014/11/19/u_s_college_dropouts_rates_explain ed_in_4_charts.html.

Xitao, F. (2001) Statistical significance and effect size in education research: Two sides of a coin. *Journal of Educational Research*, *94*(5), 275-282. https://doi.org/10.1080/00220670109598763

Zamkov, O. O., & Peresetsky, A. A. (2013). Russian Unified state exam (use) and academic performance of undergraduate students of ICEF HSE. *Applied Econometrics, 30*(2), 93-114.